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Attendees	Jeff Brillhart, NHDOT John Butler, NHDOT Howard Muise, VHB Dave Wilcock, VHB Bruce Tasker, VHB SEE ATTACHED LIST	Date/Time:	September 14, 2000, 6:00 PM
		Project No.:	Salem – Manchester 50885 10418-C
Place:	Mclaughlin Middle School	Re:	ATF Meeting #6-I-93, Ridership Projections
		Notes taken by:	Bruce Tasker

Dean Kacos, acting ATF chairman, opened the meeting.

Jeff introduced the project study team from the Department and VHB, and noted that Frank Deljuidice, Project Manager, from the Army Corp of Engineers (ACOE) was in attendance.

Jeff noted the project is moving forward through the process. He noted that Commissioner Kenison continues to advocate the construction of new park and ride lots at Exits 2, 3, 5 before the actual highway construction begins. How this can be accomplished is under active discussion.

Another issue that the Department is very much involved in is incident management; that is how to deal with accidents on the highway to limit delays to motorists and limit the amount of time local emergency personnel, the NH State Police, and the NHDOT maintenance personnel must take away from other duties. A recent incident management workshop sponsored by the Federal Highway Administration was held on August 29, 2000 to look at ways to improve on current practices.

Relative to Environmental Streamlining (an initiative sponsored by Senator Smith in an effort to have I-93 resolved and constructed as soon as possible) the Department will be holding the Resource Agency meetings for I-93 (normally held at the NHDOT offices in Concord) in the towns along the I-93 corridor so that the public can attend and better understand the permitting process. The first such Resource Agency meeting will be held on September 20, 2000 at 4:00 PM at the West Running Brook Middle School in Derry. We will be talking about the next phase of the ridership discussion: how the ridership relates to traffic volumes along the corridor. This phase of the ridership discussion will also be discussed at the next ATF meeting to be held on October 12, 2000 at 6:00PM Fisk School in Salem. Jeff urged the public to attend these Resource Agency meetings because the agencies do have a perspective as to what should be done for I-93 and what should be done for transportation infrastructure in New Hampshire. It is important that the public knows and understands the Agencies perspective so they can draw their own conclusions as to what should happen along the I-93 corridor.

Jeff then explained that as part of the study to improve I-93, a number of issues need to be addressed. Some of the issues include property impacts, noise impacts, impacts to wetlands and prime wetlands, floodplain impacts (Salem has noted their concerns regarding this issue), water quality impacts, air quality impacts and impacts to wildlife through fragmentation due to the widening of I-93. These issues are important, and will be addressed, however they are in general fairly common to transportation projects. As such, the Department they can be addressed in a relatively straight forward manner. Two issues which are not routine, and which will require some input from the public include:

Transportation improvements- reconciling what transportation improvements are most reasonable for the corridor and the State of NH.

Secondary impacts- quantifying and mitigating impacts that are the result of transportation system improvements making the region more accessible and more susceptible to development.

Intuitively, these issues are of concern, but they are difficult understand and quantify, consequently they are difficult to deal with practically, and they are difficult to reach consensus about.

The meeting tonight will discuss information being developed to address the first issue. The existing I-93 corridor is overburdened and being asked to provide more services than it is capable.

To address the I-93 corridor's inability to provide the necessary transportation services, the Department is considering a number of service improvements:

- Widening the highway
- Providing bus service
- Constructing high occupancy vehicle lanes (HOV)
- Instituting rail service

The questions that need to be answered are:

- Which services should be instituted and constructed?
- How much of these services should be instituted or constructed?
- When should these services be instituted or constructed?

A first step to answer these questions is to develop ridership volumes that will estimate how many riders will use the various modes of transportation if made available for different scenarios and combinations of scenarios.

Howard Muise provided an overview of the ridership alternatives, methodology used and projections developed. (See attached handouts Pg. 1-6 and Tables 1-6)

Page 1 of the handout identifies the various options being considered for rail, bus and high occupancy vehicle projections.

There are 4 rail corridor options:

- West Rail Corridor. Concept to upgrade the existing active freight corridor to provide commuter service from Lowell, MA to Nashua to Manchester.
- East Rail Corridor. Concept to reactivate the existing abandoned rail corridor from Manchester to existing passenger service in Lawrence, MA.
- I-93 Basic Rail Corridor. Concept of a light-rail service in the I-93 median which would connect from Exit 5 to existing passenger service in Lawrence, MA.

- I-93 Enhanced Rail Corridor. Concept of light rail service in the I-93 median from Manchester Airport through northern Massachusetts to connect to the Woburn Transportation Center.

There are 3 bus service options:

- Expanded Bus Service. Concept to provide additional service to the existing service along I-93 corridor at Exits 5, 3, and 2.
- Enhanced Bus Service. Concept to provide service along the I-93 corridor through northern Massachusetts connecting to the Woburn Transportation Center. (similar to Enhanced rail)
- Bus Subsidies. Bus fares subsidized to be comparable to the rail service subsidies currently provided by the MBTA.

There are two HOV lane options:

- A high occupancy vehicle lane along I-93 both NB and SB in NH only.
- A high occupancy vehicle lane along I-93 both NB and SB in NH and MA, extending to MA 128/I-95.

(The preliminary runs for HOV lanes indicated that an HOV lane NH only option does not provide significant enough travel timesavings to make an HOV worthwhile and therefore, all analysis includes HOV lanes into MA.)

Page 2 of the handout is a figure that shows the I-93 corridor and the rail corridor options.

Page 3 of the handout shows the alternatives that were analyzed and includes combinations of roadway widenings with the various transit service options.

Note: The rail corridors were not only looked at independently, but also in combination with other modes, in an effort to maximize the amount of ridership and the diversion of drivers from the highway. It should also be noted that only three of the rail lines are included in the evaluation. The I-93 Basic Rail concept is excluded because it will have essentially the same ridership as the East Rail Corridor or compete with the bus service that is being considered.

Alternatives 1-3:

- Rail service options in conjunction with the existing highway configuration, (i.e. 2 lanes in each direction along highway corridor).

Alternative 4:

- Considers Expanded and Enhanced bus service, provision of an HOV lane and 2 existing highway lanes in each direction.

Alternative 5:

- Considers Expanded and Enhanced bus service, provision of an HOV lane in each direction, 2 existing highway lanes in each direction, rail service along the West Rail Corridor and a bus subsidy.

The bus subsidy makes the bus competitive with the rail system. The West Rail Corridor is the most complimentary rail option to having extensive bus service down the highway corridor. The East Rail Corridor and the I-93 Basic or Enhanced Rail Corridors compete with the bus service for the same ridership and consequently do not maximize ridership and the resultant diversion of highway drivers.

Alternative 6:

- Considers Expanded and Enhanced Bus service, with a widening of the roadway to three general-purpose lanes in each direction.

Alternative 7:

- Considers Expanded and Enhanced Bus service, with a widening of the roadway to three general-purpose lanes in each direction and one HOV lane in each direction.

Alternative 8:

- Considers Expanded and Enhanced bus service, with a widening of the roadway to three general-purpose lanes in each direction, rail service along the West Rail Corridor and a bus subsidy.

Alternative 9:

- Considers Expanded and Enhanced Bus service, with a widening of the roadway to three general-purpose lanes in each direction, one HOV lane in each direction, rail service along the West Rail Corridor and a bus subsidy.

Alternative 10:

- Considers Expanded and Enhanced Bus service, with a widening of the roadway to four general-purpose lanes in each direction.

Page 4 of the handout shows the Rail and Bus Methodology, which is essentially the same methodology, used to develop both the bus and rail ridership projections. The analysis is for the design year 2020.

For each of the rail lines, market or service areas are designated for proposed station locations. The analysis utilizes the 1990 journey-to-work (JTW) data, which identifies where people live and where they work. This data provides an estimate of how many people that live in NH will work in Boston or along the I-93 corridor in northern Massachusetts. The 1990 population forecast for NH, as well as the employment forecast for the work destination is factored up to the 2020 design year. This information is compiled into a work trip table, which is then used to forecast the ridership projections. The next step is to calculate what share of those trips would use transit based on a "mode choice model". The mode shares are applied to the commuter population to determine the estimated ridership. The "mode choice model" used for the projecting the mode share is an accepted modeling used by metropolitan planning organizations and state agencies. The model compares relative impedance; that is, the relative convenience and cost of using one mode versus another. In this case, the impedance is defined in terms of the cost of the trip and the time involved in making the trip, all converted to a common measure of time. Options are compared and if the impedance factors are equal then the model assumes an equal share to each mode. If one mode gains an advantage, then the model assigns a proportionate increase of the ridership share to that mode.

The time is the time from the start of the trip at the residence, to the arrival at the destination, whether by car to Boston, or by car to the station and then a transit mode to the destination. The costs include out of pocket costs of the trip, fares, parking costs, costs to operate the vehicle, etc.

For the automobile, the impedance includes the travel time from home to work place, cost of driving, and the average cost of parking (parking costs only in Boston, outside of Boston free parking is assumed).

For the rail and bus, the impedance includes the drive time to the station, the wait at the station, transfer time at Lawrence or Woburn for the commuter rail, the travel time for rail or bus to Boston or to destinations along I-93, the average time from a rail or bus terminal to a work destination, the cost of driving to station parking (Manchester only at this time), and an auto preference factor to account for the fact that commuters generally prefer the convenience of their cars to the use of rail or bus service.

As a check on this projection a comparison was made with a low and a high estimate. The low estimate is based on 1990 JTW data for the City of Manchester where 27% of the people who were traveling to Boston were using transit. The high estimate was determined from the MBTA system serving Boston from Attleboro, Massachusetts, which has similar demographics to Manchester, except that 63% of the workers traveling to Boston use transit. This is the highest percent on the MBTA system. This percent is considered high for I-93 study corridor because the Attleboro ridership would be expected to be somewhat higher because Attleboro is closer to Boston than Manchester and the commuter rail from Attleboro goes directly to downtown Boston unlike the proposed rail service for the I-93 options (except for the West Rail Option) which are more indirect. The other reason that one would expect more rail ridership in Attleboro is that the highway system connecting Attleboro to Boston is not as direct as the I-93 link, because you have to loop-around from I-95 to MA 128 to get into Boston.

Page 5 The HOV (carpooling) Methodology is very similar to bus and rail where market areas were identified for the HOV's, and the 2020 commuter population was then projected. Access locations to and from the HOV lanes were also identified. Projections of future travel times for the roadway with and without HOV lanes and with and without other widening for general-purpose lanes were calculated. For example, for the no-build condition of 2-lanes, the future travel time is based on future highway levels of service (which would remain poor for the no-build condition). This evaluation considers the entire I-93 corridor in Massachusetts and New Hampshire. With the HOV lane added or general use lanes added, the travel times are revised. HOV lane use is calculated based on JTW data with the percentage of HOV's (versus single occupancy vehicles SOV's) increased in response to the travel timesavings as experienced in other locations where HOV lanes were introduced.

Page 6 This page describes the methodology used to calibrate the model to make sure that the model is producing results that are reasonable for this area. The model addresses daily riders inbound. The model produces results that are a little on the high side, but otherwise the calibration is a good match, and the model is considered to be reasonable.

Howard Muise presented the results from the ridership projections for all segments of the I-93 corridor, but more specifically explained the methodology related to the segment of I-93 between Exit 1 and Exit 2 as an example of how the tables are used. The ridership information for each of the segments is shown in the attached Tables 1-5. Tables 1 and 2 address transit (rail and bus) ridership; Table 3 and 4 address HOV lane use; and Table 5 and 6 address the Daily and Peak Period traffic combined with HOV, bus, and rail volumes for all segments.

Questions and answers

Al Turner. Is the \$.20/mile estimate for driving costs reasonable?

Howard Muise. The cost is based on previous studies and is not the total cost of operating a vehicle. In some estimates that total cost is \$.35/mile, however that cost includes the cost of owning the vehicle, insuring the vehicle and operating the vehicle. We are talking about just the cost of operating a vehicle.

Herb Pence. How are the travel times calculated for the HOV lane vehicles?

Howard Muise. The travel times are based on peak periods or peak hours under congested conditions. We are looking at commuter trips. The question is how many people can we get onto a bus or rail service during the congested period. By adding lanes we reduce the congestion on roadway and decrease the travel time. As a result you will get a difference in how many people which shift to an alternative mode because the travel times may be better on the improved highway than they are on the existing highway.

Dean Kacos. For Alternative 4, why don't you include rail when you add the HOV lane?

Howard Muise. Alternative 5 addresses that combination of options. Alternative 4 does not have a rail component, but instead provides a comparison between bus and rail options. Without an HOV lane added to the general use lanes the bus really is not competitive, but with an HOV lane the bus will have improved travel time and be competitive. The HOV lane is a separate lane for vehicles with 2 or more passengers.

Dean Kacos. Would the HOV be time restricted like California?

Howard Muise. You could have the HOV so designated all day, but most facilities are opened up to all traffic during the off peak periods.

Dean Kacos. How can you have an HOV volume without an HOV lane?

- Howard Muise. There are HOV's on the highway today and there will be HOV's in the future with or without an HOV lane. What is important to note is that if you add an HOV lane you will induce carpooling and bus ridership.
- Peter Griffin. For the rail figures is that a combination of the east and west?
- Howard Muise. No, the figures are for the alternative that is being described; Alt 1 has West Rail and Alt. 2 has East Rail.
- Peter Griffin. Alternative 1 for West Rail corridor is 1,154 riders and Alternative 2 for the East Rail corridor is 1,734. The West Rail corridor is through-service to Boston and the East Rail corridor requires a transfer at Lawrence.
- Howard Muise. Howard clarified that the West Rail corridor ridership is only the ridership between Manchester, Bedford and Merrimack station. For modeling purposes the Nashua station is assumed to already be in place.
- Peter Griffin. The comparison of providing through service on the west and not having through service on the east is comparing apples and oranges. Why don't you evaluate through service on the east?
- David Wilcock. The West Rail corridor has been evaluated as a through service because it is a natural extension of the commuter service that is being extended to Nashua. For the East Rail corridor, Lawrence is not the end of the existing commuter rail line; the service extends to Bradford and Haverhill. The MBTA already reduces the amount of service on that line north of Reading by about half because of the single-track constraint for about six miles north of Reading to Wilmington Junction. There are only about 22 trains a day. If you want to extend through service up the M&L, you would have to take that number of trains per day and split it between each branch. Until the MBTA addresses the single-track constraint and the constraint south with the Malden/ Melrose line into North Station where there is already only a single-track, they cannot put more trains onto the Haverhill line. The MBTA has indicated that they do not propose to double track the line. The Amtrak Boston to Portland service is going down to Wilmington Junction and cut across the Wildcat to the NHML, because they do not have capacity.
- Peter Griffin. I have been at meetings where elected officials in Lawrence Massachusetts area were going to file bills to evaluate double tracking that line. I suggest the NHDOT get in touch with Lawrence area officials and evaluate the potential of through tracking the M&L train.
- Peter Griffin. Is there a subsidy for the rail side similar to the bus side?
- Howard Muise. The rail side is assumed to have a comparable cost to the MBTA commuter rail fare structure.
- Herb Pence. For alternative 4 in Table 5, the bus ridership shows 5, 376 for one day. Is that for one direction? Is the traffic volume 114,300 one direction or both directions?
- Howard Muise. The bus is daily ridership, total both directions, as is the traffic volume a total of both directions.
- Herb Pence. Such a bus ridership would take about 45 to 50 passenger buses coming out of this corridor within the 180-minute peak period. Today, there are 13 busses coming of Manchester and Exit 4. Who will provide the capitol cost to increase the number of busses from 13 to 45?
- Howard Muise. This analysis assumes that there are as many busses as there are people who want to ride them. The next step we need to take is to determine how many busses, what is the cost to buy and operate the busses. A cost analysis is required to complete the analysis.

- Dean Kacos. In trying to draw a conclusion from the 3-hour columns in Table 6. It almost seems like we shouldn't do anything?
- Howard Muise. The next steps that we need to look at are what does this ridership translate into in terms of impact on the roadway. By combining this next analysis with a cost analysis you may be able to draw some conclusions.
- Dean Kacos. I thought it was a forgone conclusion that we are widening the highway.
- Jeff Brillhart. The highway widening (both type, and how much) is still very much on the table. We need to get to the next meeting where we will be discussing the ramification of the ridership on the traffic numbers. Next Wednesday we will be discussing this with the Resource Agencies in Derry.
- Roger Hohenberger. Another issue of concern is how to get people on the transportation system without impacting the secondary roads that connect to I-93.
- Peter Griffin. Does the NHDOT believe that this will be the last time that I-93 will be widened?
- Jeff Brillhart. The Commissioner's has made this statement from the onset of this project.
- Peter Griffin. The companion piece to the highway, the rail corridor (east or median) has to be decided upon now so it can be integrated in the transportation system when I-93 reaches its peak.
- Roger Hohenberger. We have an existing railroad bed, (East Rail Corridor), and in the next few years MA Rte. 3 and NH 1-93 will be under construction.. Today, every 2-weeks, a trailer truck accident closes I-93. Would it not make sense to build the rail now to ease the problem? This would be an incentive to get people out of their cars.
- David Wilcock. It's technically feasible. We would have to look at the capitol costs.
- Roger Hohenberger. I'm still confused on the numbers with Alternative 5 and 8. There is the same amount of pavement with the same bus options included, but between Exits 1 and 2 Alternative 5 gives you a 4.1% reduction and Alternative 8 gives you a 1.7% reduction.
- Howard Muise. The difference is that Alternative 5 has an HOV facility. The bus ridership is a lot lower in 8 than it would be in 5.
- Roger Hohenberger. But in reality, what is going to happen is more people are going to be allowed to use that third lane with no HOV restriction, so the numbers should be closer because you have the exact same infrastructure on both alternatives.
- David Wilcock. The infrastructure is not the same. The pavement is about the same, but in Alternative 5 you have an HOV lane that is restricted to HOV vehicles (buses car-poolers, etc.) and the general use lanes are more congested (than they would be in Alternate 8) further inducing motorists to carpool or to take the bus. The bottom line is Alternative 5 results in a larger percentage of peak hour traffic reductions due to riders' carpooling or using the bus. Whether the reduction results in an acceptable level of service for the corridor as a whole is a subject for the next meeting.
- Peter Griffin. The riders boarding at Exit 1 for the East rail corridor, where are they drawn from? The NHDOT has a NH 111 project that will intersect with the East Rail corridor. If you had a station there would you attract more traffic to the station?
- Comment. The Exit 1 station is near the intersection of NH 28 and Rockingham Blvd. The station would draw from Salem, Haverhill, Atkinson, and some from Pelham. If you had a station in Windham, you would attract more riders.
- Comment. The turnout for tonight's meeting is poor. Maybe future ATF meetings should be scheduled for 7:00PM?
- Comment. Maybe ATF meetings should be scheduled at the Londonderry Middle School.

Jeff noted that the schedule is showing that the Public Officials meetings (previously scheduled for October/November) are now scheduled for late November. The reason is the need to disseminate and

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understand the ridership issue and how it relates to the issue of alternatives. The Rationale Report is still scheduled to be completed in January 2001.